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CONTENTS

Original Papers

A Critique on the Prescribing of Tinted Lenses. Earl J. Dean..... 22

Notes, Cases and Instruments

Hyperopia as the Indirect Cause of Squint. Ralph G. Colberg..... 29
Unusual Posture Developes Abnormal Power in the Inferior Rectus Muscle. Carel C. Koch..... 29

Editorials

The Future of Optometry..... 31
An Opportunity 32

Reports and Announcements of Societies

Annual Convention 33
Convention Committees 33
The Head of the Lakes Optometric Society..... 33

Special Report

Objectionable Trade Association Practices Are Defined..... 34

Current Literature 35

Book Notices

Principles and Practice of Perimetry, C. Peter..... 36

Educational Questionaire of the South Dakota Optometric Society..... 36

Program of the Minnesota Convention..... 32

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VOL. 1. FEBRUARY, 1924 NO. 2

A CRITIQUE ON THE PRESCRIBING OF TINTED LENSES

Earl J. Dean, Opt. D., F.A.A.O.

Bloomsberg, Pennsylvania

This paper, by an optometric practioner of high standing in Pennsylvania, was presented to the American Academy of Optometry as his fellowship thesis. While the editor does not agree with Dr. Dean in all of his conclusions the paper shows much of merit and it is this type of original research that will open to optometry the true fields of service to mankind.

We wish to say at the outset, that in certain portions of this paper we are compelled to plead guilty to the charge of presenting proofs of the obvious. In these days of a more exact optometry and general scientific enlightenment the more intelligent class of our patients can be no longer satisfied with vague explanations and excuses for our shortcomings. We feel, therefore, that if a re-threshing of a few facts will refresh our memories and promote discussion we are justified in our reference to the obvious.

In presenting this paper before the American Academy of Optometry we feel that we are addressing an assembly of men of much wider experience and more acute optometrical insight than ours. However, if by reviewing and presenting the obvious for comparison with some interesting points that have arisen in our practice, and the results of some limited experiments, we can provoke discussion and a relation of similar experiences on your part, together with your questions and answers, we feel that it will be of benefit to all.

In the past five years much valuable work has been done to educate the public to a proper appreciation of the value of Optometry. Despite the remarkable advances along that line we are still obliged to shoulder a too large amount of public distrust and dissatisfaction.

Unless we become keenly conscious of the value of a clear conception of the present and future problems of Optometry, the public will be, more and more, wrongly influenced by our present day shortcomings and no amount of educational propaganda will offset the evil results of our indifference. There is no contesting the value of the advances made and no intelligent practitioner will argue against such ideals.

That there has been a marked increase in the number of colored or tinted lenses prescribed in the past few years is a well known fact—such lenses being prescribed with the idea of preventing certain harmful (?) light rays from entering the eye. We believe it has been greatly over-done and it is indeed difficult for us to understand the cerebrations of the many practitioners, who, without thought of the future, indiscriminately prescribe this or that kind, shade or tint of lens, often for no other reason than because it is highly recommended by the manufacturer or, worse, because the patient "thinks" he needs it and asks for something to reduce the intensity of the light. Without doubt much of the relief and benefit accredited to the various tinted lenses is due to the artful suggestions of the one prescribing them.

Too many tinted lenses are accepted as "all right" simply because they bear the name of some widely known concern. Far too many practitioners are mislead into accepting laboratory tests and reports on the absorptive qualities of the various tinted lenses as positive proof of their value. Practically all such reports are of a more or less academic nature and without thought or reference to the many problems confronting the doctor who practices optometry. Many theories and suggested procedures evolved in the laboratory fail in practical application.

We should not permit the laboratory worker to dominate the field and, furthermore, we should not accept this or that as being good until we have interpreted the results of practical appli-

cation with all the data judged by sound common sense and accurate reasoning and observation. We invite your attention to the fact that it is as hard to reason accurately as it is to observe accurately. Too many of our difficult problems are easy ones unsolved by "mental laziness."

From time to time we are offered, and urged to use, certain tinted lenses reputed to possess particular merits, suggested as the result of more or less careful laboratory tests. It would be absurd to infer that we in any way minimize the value of laboratory tests and special study. Such inference would be far from the truth. We do, however, firmly believe that it is, if we may use that much abused term, the "average practitioner" who should affirm or refute the value of such lenses.

We should not use tinted lenses of questionable merit and, above all, use those of accepted worth ignorantly.

That certain kinds of colored or tinted lenses are necessary and proper when the eyes are exposed to the action of intense heat and light rays, such as occurs in the tropics, in the strong light of high altitudes and snow, in the laboratory, glass blowing, oxy-acetylene welding etc., and in various pathological conditions is an established fact.

In our experiences with tinted lenses in pathological cases Noviol glass in the "A" and "B" shades apparently gives the best results. This conclusion was reached after carefully checking up a series of one hundred cases where tinted lenses were used, a report of the results being published in the January 1923 issue of Archives of Optometry.

It has long been suspected and, although not proven, frequently pointed out that the ultra-violet rays in our modern illuminants are injurious to the healthy eye, this despite the fact that while we know that all light rays penetrate the human body we also know that the violet rays possess this power to a lesser degree than the heat rays.

Burge and Neil (1) conducted a series of experiments to determine whether opacity of the lens or cataract could be produced in excised pig and ox lenses by radiant energy. Their conclusions were that, "cataract or opacity of the excised lens can not be produced by means of radiant energy from the infra-red, the visible, or the ultra-violet regions of the spectrum, under conditions much more extreme than any to which the human eye is ever subjected, provided the heat effect be excluded.

Verhoeff and Bell (2) in their remarks on the effects of various color rays on the eye claim that the lens in the normal eye completely protects the retina from any injurious rays that can penetrate the cornea and vitreous and that the cornea and vitreous adequately protect from injury the retinae of aphakic eyes from any exposure possible under ordinary conditions of life. They regard glass-blowers cataract, so often charged to specific radiation, ultra-violet or other, as due to over-heating the eye as a whole with consequent disturbed nutrition of the lens.

Cravath (3) says, "No trouble need be feared from the effects of ultra-violet light upon the eyes with any of the common illuminants now in use. The amount of ultra-violet light obtainable from commercial illuminants is so small compared with that to which the eye is subjected constantly in daylight that it can be left out of account."

Consider the natural protection from excessive light afforded the eyes by their location, shape of the orbit, action of the lids and eyebrows etc. With the head in a natural upright position the eyebrow of the average person will shade the eye from light coming from above at an angle of about 25 degrees from the vertical. Slight inclination of the head will increase this figure.

We say that the retina "adapts" itself to extremes of light. Consider the highly developed pupillary mechanism for automatically regulating the amount of light admitted under the many variations of light intensity to which the eye is exposed, thereby making easier the retinal adaption.

Your attention is directed to the following figures taken from the table prepared by the Committee on Glare of the Illuminating Engineering Society giving the brightness of various sources of light. The figures given for the approximate brightness of intrinsic brilliancy of various primary and secondary light sources are in milli-

lamberts—one candle power per square inch equals 486.7 millilamberts.

Light Source	Millilamberts
Sun at zenith (rough equivalent values, taking account of absorption)	292,020,000
Sun at 30° elevation (rough equivalent values, taking account of absorption)	243,500,000
Sun at horizon (rough equivalent values, taking account of absorption)	973,000
Sky—light clouds	2,075
Sky—clouds predominating	1,684
Sky—cloudless, either clear blue or hazy	1,046
Sky—cloudy, storm near or present	400
"Artificial Sources"	
Crater, carbon arc	40,800,000
Flaming arc, clear globe	2,435,000
Calcium light, clear globe	2,435,000
Gas filled tungsten electric lamp filament	1,400,000
Incandescent electric tungsten, 1.25 watts per candle	516,000
Welsbach Mantle	15,080
Kerosene Flame (maximum)	4,380
25 Watt Frosted Tungsten Lamp—"Side"	2,920
"Tip"	812

Striking an average from the figures given with sun and sky as a light source we have an average brightness of 76,642,600 millilamberts as against 40,800,000—almost double that of the highest figure given in the artificial sources to the crater of a carbon arc and over sixty times greater than the gas filled Tungsten electric lamp filament.

Much has been said and written about tinted lenses affording relief to sensitive retinae supposedly the result of higher powered lights, higher tension in general and the greater expenditures of nervous energy incident to a rapidly advancing civilization. We believe that if a like amount of energy were expended in the study of the lighting of buildings, both natural and artificial, as a means of preventing retinal hyper-sensitiveness, fewer practitioners would be looking to tinted lenses to afford that relief and the eternal question of which tint?, and why?, would be less annoying.

Ives says, "Good artificial lighting is not a question of the kind of illuminant but how the illuminant is used. Oil, gas, and electricity can each be used to produce satisfactory lighting, and each can be abused. The whole problem of satisfactory lighting is a matter of the proper distribution of the light with respect to the objects to be lighted, and with respect to the people who are to see these objects."

We know that the eye-sight of many school children deteriorates rapidly on account of the very great ocular damage that too often results from poor illumination of the school room and yet, many of us fail, or are totally unprepared to impress upon the laity, at every opportunity, the evil effects of improper lighting and to instruct and direct them whenever and wherever necessary.

In the town in which we live and practice the textile industries predominate, the silk industry being represented in all its branches, woolen mills, the knitting of hosiery and the second largest carpet mill in the United States have all contributed some interesting problems and, in all of them, excluding the pathological cases, properly fitted clear, crown glass lenses with attention to working conditions in general and, lighting conditions in particular, have solved many of our difficult problems or, to be more correct, many apparently difficult problems.

A great many of our patients originally classed as difficult cases have been weavers and silk spinners. Almost without exception we found that they were using very bright lights, some unshaded and some concentrated on their work with cone shaped shades, some men purchasing 75 and 100 watt lamps for use over their looms because, as they put it, "the company globes weren't strong enough."

These patients made up two entirely different classes of cases. The first, of which there were the greater number, were usually weavers of long experience—10 to 15 years—who complained of great ocular fatigue and severe headaches. "I've lost three days this week on account of headache," "I seem to see well enough but my eyes get so tired," "My eyes pain and burn when I work, especially in the afternoon," were complaints commonly heard.

These patients, working under an intense light for periods of from ten to fifteen years, had so blunted their retin-

al sensitiveness that they could hardly see without a light of high intensity.

A large number of these patients were first fitted with tinted lenses without much, if any, thought about their working conditions. When they began to return, complaining that the desired and promised relief was not forthcoming, we were forced to the unpleasant conclusion that we had erred—an error that cost us much in prestige and patronage among the textile workers.

Many of these patients suggested that a darker shade of lens would be quite the thing. However, we reversed our position and after careful refraction prescribed clear, crown glass lenses and began to give their working conditions serious consideration. It was then that our real troubles began and many of these patients became most difficult to manage.

It took repeated explaining that when light falls on the retina it excites certain photo-chemical changes, proportionate to the intensity of the light and length of exposure—that a light might be so dim as to excite too little reaction to enable one to see it and, on the other hand, it might be too intense and exhaust the visual purple, thereby incapacitating the eye, either temporarily or permanently. Also that while the opthalmoscope apparently failed to show any evil effects from glare, they could not, without the fatigue and discomfort complained of, work as long under an extremely bright light as they could under a light of less intensity properly distributed.

The second class of patients were principally young weavers who had been operating a loom but a short time and their retinal sensitiveness, instead of being blunted, became very hyper-sensitive.

Tinted lenses in this class of cases were also most unsatisfactory. Like the others they too returned, still seeking relief. The same procedures were followed as with the first class of patients. In a few instances we gave lenses of a deeper shade and had twice the trouble in later getting them to accept clear lenses. In all cases the photophobia, or tendency to photophobia was increased.

Some of these patients, who sought relief elsewhere, returned later wearing deeply tinted lenses and it was necessary to gradually lighten the tint of lenses given until we reached clear lenses again—a slow and trying process.

When patients presented hyper-sensitive retinae we had the best results by keeping them away from work for a week or ten days, prohibiting "near work" of any kind, and then starting them in again under proper lighting conditions.

Photometric measurements have shown that the light from an ordinary incandescent lamp concentrated at a working point oft times exceeds the intensity of daylight. While the retina of a workman will for a time adapt itself to the greatly increased intensity, when he turns from his greatly overlighted work, many times in a room full of moving machinery, he is practically blind. Defective lighting is therefore a fertile source of industrial accidents. When we consider that every worker has a definite economic value to the nation, it is obviously our duty to in every way increase that value rather than diminish it.

The all too frequent failure of tinted lenses to produce the results expected of, and credited to them, prompted us to make some experiments in an effort to find, if possible, the reasons for our apparent lack of results.

Our first effort was the careful observation of tinted lens effects in one hundred cases, a report of which has been published and was referred to in the fore part of this paper.

Our next attempt was some experiments with light effects on gold-fish. In this and subsequent experiments the "A" shade of Crookes glass was used and, for two reasons—

1st. Because it has been much advertised—much has been claimed for it—and because it is probably the tinted lens most used today.

2nd. Because, in our experience, it gave poor results in pathological cases.

The fish used in these experiments were small "telescope fan-tails" because they were easy to handle, their bulging eyes being easy to examine and, being very active, much like a trout, any changes in their movements and feeding habits were quickly noted.

Three bowls of fish were used and numbered, No. 1 (3 fish), No. 2 (3 fish), No. 3 (6 fish).

The fish in No. 3 were kept in weak solution of Sodium Citrate (O.5 to 1.0%) to produce opacities of the lens. The fish in No. 1 and No. 3 were directly exposed to brilliant sunshine every moment possible during the daytime and, from twilight to 8:00 o'clock P. M., were kept in a small room lighted by a semi-indirect electric fixture (two 40 watt globes).

The fish in No. 2 were exposed to the concentrated rays of a 40 watt incandescent lamp from 8:00 o'clock A. M., to 8:00 o'clock P. M. All were in darkness from 8:00 o'clock P. M., to 8:00 o'clock A. M.—this for a period of six months.

At the expiration of this time all the fish were carefully examined and were apparently healthy and no ocular changes were apparent excepting the appearance of lens opacities in the fish in No. 3 (Sod., Citr., Sol.). One fish had what we considered a fairly well developed cataract in the left eye and a marked clouding of the lens in the right eye. The remaining five showing opacities of varying degree—mostly at the lens periphery. These fish in No. 3 were then kept in fresh water the same as those in No. 1 and No. 2.

We then constructed what we called "light screens" by "leading up" old "A" shade Crooks lenses much as a stained glass church window is constructed—these screens being box shaped and screening the light from the top and sides. This was done because the cost of gold fish bowls made of Crookes glass was, for us, prohibitive. At the time we were much amused by a neighbor who remarked, "Doc's gettin looney! He's makin' specs for goldfish now!"

The same light conditions were again imposed with the screens covering the bowls, it being our intention to keep them so for another six months. We were, at the end of the fourth month, compelled to remove the screens. The fish having become inactive, refusing food and, in all three bowls, they developed a diffuse, erysipeloid erythema which promptly cleared up when the fish were again exposed to the unscreened sunlight throughout the day. At the end of a week the erythema had disappeared but some of the fish had died. Three in No. 3, two in No. 1 and one in No. 2. The bowls were again screened and in nine weeks the erythema appeared again, which, as before, promptly subsided on a weeks' exposure to the unscreened sunlight. At this time we concluded the experiment and an examination of the remaining fish showed the following:

No. 1 One fish—apparently healthy —no visible ocular changes.

No. 2 Two fish—apparently healthy —no visible ocular changes.

No. 3 Three fish—apparently healthy except for ocular opacities. One has a well defined cataract in the left eye and marked clouding of the lens in the right eye. One has a few small cloudy patches at periphery of both lenses. One has a few small cloudy patches at periphery of right lens and a small central opacity in the left lens.

A brief summary shows that a concentration of both natural and artificial light was apparently without evil effect on the fish in No. 1 and No. 2 and concentrated sunlight apparently had no evil effect on the fish in No. 3, neither was there any apparent effect on the lens opacities. When screened with "A" shade Crookes glass there developed in all of the fish a disease which, in those who survive, was promtly relieved by exposure to unscreened sunlight.

Later, as a "check," three fish of a different strain were subjected to the same test and developed what appeared to be the same condition or disease in exactly fifteen weeks, which again promptly subsided on exposure to unscreened sunlight.

Prior to, and during the fore part of the time devoted to the experiments with gold fish we were carefully selecting one hundred cases in which, as far as we could ascertain by careful and most thorough examination, there was absolutely no indication for the use of a tinted lens of any kind.

These were all fitted with "A" shade Crookes lenses.

Patients selected for this series were those in whom we felt there existed a large measure of confidence in our ability and who would accept the lenses prescribed without any explanation other than that "at this time your ocular conditions are such that we believe the use of Crookes lenses is indicated."

These cases were taken as they presented themselves and while no selections as to type or kind of refractive error were made the following errors were present in the series:

Hyperopia	31
Hyperopic Astigmia	20
Compound Hyperopic Astigmia	43
Myopia	3
Myopic Astigmia	2
Compound Myopic Astigmia	1
	100

In the lenses prescribed no sphere exceeded 3.00 D., and no cylinder exceeded 2.00 D.

The results were interesting and as follows: In this, as in former experiences, Crookes glass apparently gave more comfort and relief to the myope than the most carefully selected "clear" lens. The six myopes in this series wore their Crookes lenses with great comfort and satisfaction for a little over a year, when we then changed their glasses and gave them clear lenses again. They all promptly complained of discomfort—slight blurring of vision, which was more marked at night, and photophobia.

This regular appearing, slight reduction in visual acuity and apparent increase in the tendency to photophobia has kept us from prescribing Crookes glass as a routine measure in myopia. The question arising in our mind as to the possibility, at some future time, of being compelled to make the tint of lens prescribed for these patients deeper and deeper, possibly reaching a "D" shade London Smoke, to give them the desired relief and comfort. A most undesirable procedure and, in the light of our present limited knowledge of the "why and wherefore," possibly a very dangerous one.

Again, if we accept Mendel's Law, would it not be possible that the offspring of several myopic generations, glassed with colored lenses, might show some ocular degeneration, possibly akin to that found in the eye of the mole.

Williams, in his book on obstetrics, points out that the chromosomes of both the mature ovum and the spermatozoon are direct descendants of those concerned in the fertilization of the parent organisms and that it has a broad significance, in that it brings together nuclear substances derived from the ancestors of both parents. In the case of man, where the mature ovum and spermatozoon each contain twelve chromosomes, it is apparent that many combinations are possible—it having been calculated that any one of one hundred and sixty-nine hereditary possibilities may have to be reckoned with. Will unrestricted and injudicious prescribing of tinted lenses, especially in myopia, add to that hundred and sixty-nine?

Of the remaining ninety-four, nine returned (2 males and 7 females) inside of ten days and rebelled against wearing tinted lenses for "cosmetic reasons." The complaints as a whole being, "They make my eyes look too dark—My eyes look as though they had black rings around them." From a cosmetic standpoint these complaints were somewhat justified as these patients were all pronounced blondes. Clear lenses were satisfactory.

Twenty-three (7 silk spinners and 16 weavers) who worked nights returned inside of six weeks and insisted that "something be done to their glasses" as they could not see well by lamplight. We gave them clear lenses which proved very satisfactory.

Three weavers complained of interference with color perception while at work. No difficulty being experienced when not watching a moving pattern in the loom. Careful tests with and without their Crookes lenses and with clear lenses, failed to show any abnormalities in color perception. Clear lenses gave prompt relief.

A passenger engineer whose eyes we have examined semi-annually for over three years said, "they seem to be all right in day-time but they're a damned nuisance at night," complaining of confusion in recognizing signal lights. Color perception in this case was excellent and the giving of clear lenses stopped all complaint.

Three patients in this series died and seven moved to other locations and were lost track of.

The remaining forty-eight all wore their Crookes lenses about a year—none less than ten months and none more than fourteen months. When changed to clear lenses thirty-five made no complaint or comment. Eleven complained of "dazzling" on bright days and more or less annoyance from bright artificial lights, which cleared up in ten days to two weeks.

Two patients (hyperopic astigmia 1.25 + 2.00 D.) had a rather marked photophobia which gradually cleared up in three weeks.

In each of the last thirteen patients the ophthalmoscope showed a rather marked retinal congestion. All others in this series, excluding the six myopes, presented no apparent retinal changes at the end of the year, the myopic cases, while showing slight increases in their refractive error apparently had as much retinal congestion as they did when we first saw them.

Since we became interested in directing our feeble efforts toward a possible solution of some of our "tinted lens problems" we, like Omar,

"—did eagerly frequent
Doctor and Saint, and heard great argument
About it and about: but evermore
came out by the same door where in I went."

In connection with these problems we have often thought of a little verse we read in a Chinese book called "Chips of Jade,"

"How small the Heavens are, the Frog can tell;
He's seen them;—From the Bottom of the Well."

While we do not wish to be accused of supporting doctrines uncertain of demonstration of resting on the unfirm foundation of inadequate investigation, our experiences with tinted lenses have led to the following conclusions:

First: We are not as yet convinced that daylight or the commonly used sources of artificial light—properly distributed—contain radiations either in kind or degree that are injurious to a healthy eye.

Second: "Healthy eyes under ordinary conditions do not require tinted lenses of any kind."

Third: Too little attention is paid to the conditions under which the eyes are to be used.

Fourth: More attention to defective lighting systems will eliminate the cause of many hyper-sensitive retinae which are, only too often, made worse by seeking relief through the medium of the various tinted lenses.

Fifth: More time devoted to careful refraction, ocular hygiene and the development of our powers of observation and, last but not least, sound reasoning applied to the results of our observations, will limit the prescribing of tinted lenses to a few pathological cases and the special and occupational conditions where the eyes are exposed to intense heat and light rays.

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NOTES, CASES AND INSTRUMENTS

HYPEROPIA AS THE INDIRECT CAUSE OF SQUINT.

Ralph G. Colberg, Opt. D., Aberdeen, South Dakota.

Patient, Male, Age 29, came to me with the request that I straighten his left eye. He was wearing a correction that had been prescribed some time previous. This correction was as follows, O. D.—2.50 D. sph, () + 5.00 D. cyl. axis 100., O. S. + 2.75 D. sph. The refractionest who had prescribed this formula under atropin, made the statement that he was merely prescribing a blank lens for the left eye as nothing could be done to improve its vision.

I agreed to do what I could, and then proceeded to refract the case. His visual acuity without a correction was O. D. 20/200, O. S. Light perception only. The left eye turned out slightly. Both had a normal pupilliary reaction, although the right eye was considerably quicker to react to the test than the left. With the ophthalmoscope I could find no signs of pathology. My skiametry tests showed the same formula as the patient was now using for the right eye, but for the left however with this instrument, I could get absolutely no reflex in any of the positions I attempted to use.

It was only in the subjective test that I could make progress. After some time we determined that with a + 12.50 D. sph., in position over the left eye that the patient had a visual acuity of 20/50.

He was of course highly pleased and seemed to find little or no trouble using this as part of his binocular correction, which I at once prescribed. I also prescribed a set of treatment glasses. These glasses had an opaque lens in the right side and the full correction in the left. This to be used for partial wear.

Every indication is that in a few months we will be able to stimulate the neglected visual centers of the left eye to a point where muscular exercises can be used to good advantage. These exercises should strengthen the internal rectus muscle so that after a few treatments the patient should have binocular vision with no signs of squint.

UNUSUAL POSTURE DEVELOPES ABNORMAL POWER IN THE INFERIOR RECTUS MUSCLE.

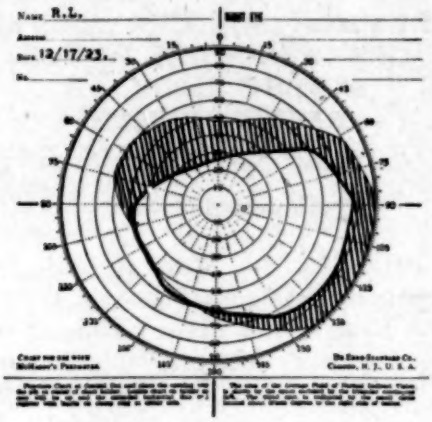
C. C. Koch, Opt., D., F. A. A. O., Minneapolis, Minn.

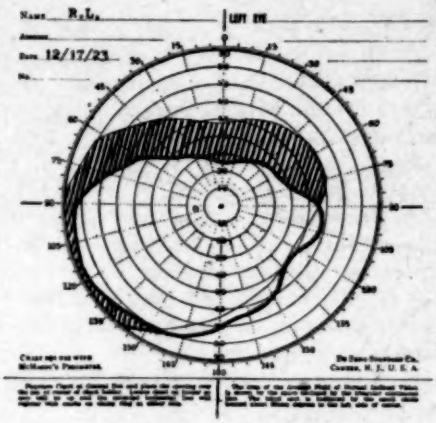
Patient R. L., Male, Age 44, Occupation Traffic manager in a Wholesale Grocery Co. Patient came to me on December 17th, 1923. He complained of an inability to see at the near point. I was at once struck by the unusual posture in which he carried his head. His chin was thrust well forward and slightly up and the head was tilted back from 15 to 20 degrees. After some questioning it developed that as far as he could recall he had always carried his head in this position. This seemed strange, but the reason became immediately apparent upon making the external ocular inspection. The orbits were very deepseated, the eyebrows very over-hanging and the frontal bone protruding much farther than the average.

Upon making a careful survey of these features of the case it developed that the distance from the anterior surface of the cornea to a perpendicular line dropped from the front surface of the brows, immediately in front of the pupil, was 22 millimeters and the top margin of the pupil was directly on the line with the lower edge of the skin covering the frontal bone.

There being no external or internal signs of pathology present, the versions also being good, though constricted in the verdical meridian, I refracted the case in the usual manner. Upon coming to the phase of the re-

fraction dealing with the fields of vision, I found the external limits of the field of form preception to be greatly constricted in the upper segment(see figures 1 and 2). This is of course due to the overhanging brows. The tilting of the head being made necessary by the patients natural desire to see ob-





jects above his own eye level.

It was in making the duction and tonicity tests however that the real effect of years in this unusual posture became noted. The internal and external rectus muscles had a normal balance at six meters and there was only one degree of exophoria registered at the near point. There was no hyperphoria present, although the superior rectus muscle seemed to have no pulling power at all. This muscle it seemed was seldom if ever used; the muscles of the neck doing the work normally done by this rectus muscle. The inferior rectus muscle though, had a pulling power of 9 prism dioptres. This was of course due to the fact that all desk work etc., required a decided pull on the part of these muscles in their effort to rotate the eyes down, while the head remained in a more or less erect position.

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EDITORIAL STAFF

CAREL C. KOCH, Editor,
209 Yeates Bldg., Minneapolis, Minn.

A. H. NORDLAND, Associate Editor,
111 Loeb Arcade, Minneapolis, Minn.

H. W. KNUTSON,
Leola, So. Dakota.

L. J. ANDERSON,
GRAND FORKS, No. Dakota.

H. B. KOLLOFSKI,
28 W. 6th St., St. Paul, Minn.

A. R. BURQUIST,
201 Alworth Bldg., Duluth, Minn.

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THE FUTURE OF OPTOMETRY.

The success we have in encouraging the optometrist of today to study will determine in a great measure the future of optometry. We cannot sit back and expect our schools and colleges to turn out professional men that will be a credit to our profession if we persist in setting a poor example for them.

Take that mirror you use for your reversible test type and turn it on yourself. Look the image squarely in the face, and ask it, "Am I doing all in my power, every day to make my profession second to none? Am I conducting my examinations in a way that will cause my patients to think and to say that I know my business? Am I paving the way for future optometry?" If this image could speak would it answer in the affirmative or would it turn its face away to conceal a disgusted look. You alone can answer this.

Do you realize that it isn't merely a pair of glasses that your patient is buying from you. He can buy spectacles from a mail order house. It is the service you are giving him through those glasses that he is interested in. They must be part of you. You must put in those glasses the utmost of your ability and knowledge. You must always have the patients well-being at heart. The glasses you prescribe may bring much joy to your patient as well as to his eyes, or they may bring bitterness and ill-will toward yourself and optometry. Ours is an important work.

This being a new year, let us cause one new thought at least come to the layman when his eyes need attention. Let this thought be, "My eyes need the attention of a skilled optometrist."

Better education on the part of the present practitioner will do much to bring this to pass. The way you conduct your examinations will do much to impress upon the public the fact, that you are the specialist he needs to correct his visual defects. Your patients will beat a path to your door when you can show them the results that can only come through study.

It is true indeed that one never stands still, you go either forward or backward.

The day is coming when every optometrist will be conducting an office practice. He will be surrounded by equipment that will be a credit to him and to the profession of which he is a member, and he will only be

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successful providing he has kept pace with the rapid strides that have been made in ocular refraction technic. The future of our profession depends upon the constant study of its present members.

R. G. C.

AN OPPORTUNITY.

The world moves onward! "The impractical plan" of today, is the great success of tomorrow. The cow pastures of our grandfather's time, now throb under the traffic of the great cities. The "dreamers" of one generation are looked up to as the leaders of the next generation.

Most men never grasp this great truth. New ideas frighten them. Such men christened the first steamboat "Fulton's Folly." They rejected the telephones, the automobiles, and the aeroplanes as being of no practical use or value.

These are the men, who in the evening of life, mourn for what they might have done, had they known what they know now.

Why do a few men succeed in their professional lives, while a great many others fail? Most men fear or scoff at anything new or different. A few men seek opportunity in new ideas. Instead of scoffing, they investigate—get the facts—and when real opportunity is found, they—

"GRASP THE OPPORTUNITY OF A LIFE TIME,

DURING THE LIFETIME OF THE OPPORTUNITY."

To men of this latter class—men who can see the opportunity ahead, instead of behind, this article carries a vital message. It offers ar unusual opportunity in giving them a chance to become members of a State Association of Optometrists enabling them to co-operate with other wide awake optometrists, who are members of the association and assists materially in protecting their interests and the interests of Optometry.

The State Association helps you on the road to success. At its annual conventions, men of national and international reputation, appear as lecturers to teach you the new and better methods of refraction. They give you the benefit of their years of experience and research. Clinics and demonstrations are also arranged for your benefit.

The State Association too, is always alert and ever ready to protect Optometry from any and all attacks at the same time, endeavoring to improve the status of the profession and its practitioners.

As an Optometrist, it is your duty to be a member of your state association and do your share of the work. If you are not a member of any optometric state association, you will find on page 37 a universal application blank. Fill it out and mail it to the secretary of the state association for your state, now, while the doors are wide open. This is your opportunity to come in and become a member. Grasp the opportunity at this time. Later on there may be a high initiation fee or other obstacles which may make it much more difficult to become a member. Act now; Do not wait until it will be too late.

J. I. K.

PROGRAM
of
Annual Convention
of the
Minnesota State Association of Optometrists, February 18th and 19th

St. Francis Hotel
St. Paul, Minn.

Monday, February 18th

9:00 A. M.	**Registration.**
2:00 P. M.	**Address of President, Dr. A. H. Nordland.**
2:30 P. M.	**Oculo-Prism Treatments, Dr. Carel C. Koch.**
3:15 P. M.	**Astigmia, Dean Ernest Petry.**
8:00 P. M.	**Business Session and Election of Officers.**

Tuesday, February 19th

10:00 A. M.	**Greater Efficiency Through Better Vision in Industrial and School Work, Dr. Roy S. Dean.**
1:30 P. M.	**Dynamic Skiametry, Dean Ernest Petry.**
3:00 P. M.	**Focal Infections, Dr. R. Best.**
4:30 P. M.	**Unfinished Business.**
8:00 P. M.	**Banquet.**

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

ANNUAL CONVENTION

Minnesota State Association of Optometrists

Secretary's Bulletin

There are many good things in life we have to forego. It is not possible to enjoy them all. But there is an event that no live, wide awake optometrist should miss. This event is the Annual Convention of our State Association.

The 1924 convention will be held this year in St. Paul at the St. Francis Hotel on February the 18th and 19th.

As Secretary of the Association I urge all members to attend this meeting. You cannot possibly undertake a more profitable trip, nor make a more enjoyable one.

Culture is one of the important attributes so necessary in making a professional success. According to Professor C. Barnett, a great English sociologist, one of the best ways of becoming cultured is through personal contact. We all grow by association. We become broader by seeing and hearing the things others are doing. Some of optometry's biggest men will be at this convention—men who in a few moments may give you an idea that will more than repay you the cost of the trip.

Come to the convention with the idea of becoming a better refractionist through the educational features of the program. But also remember the pleasure side of the trip. The city of St. Paul needs no introduction. It is widely famous as the capital of the state, it is a large shopping center and has splendid facilities for your amusement, and for your family as well. Bring them with you. The women will be entertained as usual.

The principal speakers at the convention will be: First, Dean Ernest Petry of the Rochester School of Optometry. He will deliver three lectures on the newer developments in optimetric technic. Second, Dr. Roy S. Dean, optometrist of Duluth. Dr. Dean will speak on Industrial Eye Work. In so much as Dr. Dean is one of the foremost industrial eye men in the country, his talk should be of great interest. Third, Dr. Robert Best, M. D., of Minneapolis. Dr. Best is an ophthalomologist known to many of the Twin City practitioners as a man of high character and as a speaker of splendid ability. Dr. Best will lecture on Ocular Pathology. Fourth, Dr. Carel C. Koch, Optometrist of Minneapolis. Dr. Koch's topic will be Oculo-Prism Treatments.

This is the Twenty-Fourth Annual Convention of our Association. The men in charge are promising big things and as Secretary I again urge you to meet with us in St. Paul, the 18th and 19th of February. J. I. K.

CONVENTION COMMITTEES

Dr. A. H. Nordland, president of The Minnesota State Association of Optometrists, has appointed the following committees to serve for the coming convention.

ARRANGEMENTS: Drs. H. B. Kollofski, St. Paul, and W. Gaskill, St. Paul.
AUDITING: Drs. J. L. Kubicek, Waseca, and E. Prochaska, Pine City.
NOMINATING: Drs. A. O. Nordstrom, Minneapolis; H. Watzke, Morris, and Chas. Zwicky, St. Paul.
RESOLUTIONS: Drs. E. H. Kiekenapp, Fairbault; J. Christopherson, Virginia, and H. Schleuder, New Ulm.
EDUCATION: Drs. C. C. Koch, Minneapolis; A. R. Burquist, Duluth, and E. O. Fjelsead, Red Wing.
PUBLICITY: Drs. A. J. Fandel, St. Paul, and P. H. Boeringer, St. Paul.
For hotel reservations write to Dr. A. J. Fandell or Dr. H. B. Kollofski, St. Paul, Minn.

HEAD OF THE LAKES OPTOMETRIC SOCIETY

Syphilitic Iritis

Dr. H. Charbonneau, M. D., of Superior, Wisconsin, was the speaker at a recent meeting of the Head of the Lakes Optometric Society. Dr. Charbonneau stressed the diagnostic importance of this form of ocular pathology as relating to the general well being of the patient.

Another recent speaker at the sessions of the society was Mr. F. Starck. His topic being the scientific accuracy of "Punktal" lenses.

The society held its annual banquet on January 24th. About forty persons were in attendance.

SPECIAL REPORT.

OBJECTIONABLE TRADE ASSOCIATION PRACTICES ARE DEFINED

An abstract from the original paper which appeared in the December issue of Printer's Ink, under the above title by Mr. John F. Richter. The paper dealing with a review of the government's case against the Tile Manufacturers' Association.

The government has filed its order for the future conduct of the tile manufactures industrial organization. It is in the form of a final decree in the injunction suit brought by the Department of Justice against the Tile Manufactures Credit Association, under the Sherman anti-trust law. Elimination of many business practices, declared by the government to be unlawful and objectionable, is the object of the litigation. The decree, prepared by the government and accepted by the association in settlement of the case, is considered a complete statement of the proper and improper business practices under the anti-trust laws.

In effect the decree of the government is sweeping in declaring objectionable various practices of trade associations. Under principles laid down by the order for the operation of the tile manufacturs' association, such organizations are restricted to narrow limits. It can function only for a few defined objects and purposes, such as advertising, studying trade problems, instructions, furnishing data on transportation rates, handling insurance, standardizing quality and furnishing information regarding credit on specific request only.

Using the tile association as the object of its order for the proper conduct of a trade association, the government's decree prohibited the following practices, some twenty seven in number, a few of which should be of interest to optometric societies, for while none of our organizations do make an effort to control prices, at times such suggestions have been introduced. While it is true that our organizations are not trade associations, nevertheless a professional society is of course bound by the same government laws that regulate all such bodies.

The government prohibits the following:

(1) To adopt or use a unform basic price list.

(2) To fix and adopt list prices for the associations members' products.

(3) To establish or maintain uniform prices for their products.

(4) To fix individual prices that are uniform for all classes of purchasers or dealers and for all sales.

(10) To enforce uniform terms of sale.

(17) To refuse to sell to any persons or corporations because of any unpaid bills or accounts.

(18) To formulate and establish conditions to determine whether customers shall be excluded from securing credit or impose any limitations upon the credit granted.

(21) To adopt any system of co-operative purchasing of raw materials or supplies or of co-operative owning of the sources of raw materials which would tend to eliminate competition in the purchasing of materials and supplies.

(23) To pool orders.

(26) To advise or communicate with one another as to proposed advances or decreases in prices, etc.

Obviously, these prohibitions apply only to the joint efforts of organizations.

CURRENT LITERATURE

These are the titles of papers bearing on optometry. They are grouped under appropriate heads, and in each group arranged alphabetically, usually by the Authors name in **heavy face type.** The abbreviations mean: (Ill.), illustrated; (Pl.), plates; (Abst.), indicates that it is an abstract of the original article; and (Dis.), that discussion is published with paper.

OCULAR PATHOLOGY.

Brown, A. L. Hereditary Cataract. Amer. Jour. of Oph. Series 3, Vol. 7, No. 1, pp. 36-38.

Cords, R. Decoloration of the Superficial Layer of the Iris. (Pl) Amer. Jour. of Oph. Series 3, Vol. 7, No. 1, pp. 1-6.

Ellison, M. Headache, Neuralgia and Eye Strain. Opt. Jour. and Rev. Vol. LIII, No. 1, pp. 23-25.

Fejer, J. Unusual Development of the Tisues of the Iris. Amer. Jour. of Oph. Series 3, Vol. 7, No. 1, pp. 43-44.

Hutshing, E. E. Ocular Infections, (Ill) Third Paper. Opt. Age. Vol. 20, No. 9, pp. 17-21.

Koch, C. C. Amblyopia ex Anopsia. N. W. Jour. of Optom. Vol. 1, No. 1, p. 9.

Pravey-Smith, A. B. Sinus Headaches. (Abst. from a paper in the Lancet.) of Oph. Series 3, Vol. 7, No. 1, pp. 559-600.

Zoethout, W. D. Rhodopsin. Optom Wky. Vol. 14, No. 40, pp. 2079-2080.

Physic Blindness (Editorial). Amer. Jour. of Oph. Series 3, Vol. 7, No. 1, pp. 59-60.

INDUSTRIAL EYE WORK

Boatman, D. P. Industrial Eye Tests in England. Opt. Jour. and Rev. Vol. LIII, No. 2, pp. 39-40.

Dublin, R. Optometrists' Method of Conducting a Visual Survey in a Large Industrial Plant. (Ill) Opt. Jour. and Rev. Vol. LII, No. 24, p. 36.

Winslow, C. E. A. Fatigue and Its Factors. (Serially) West. Opt. World. Vol. 10, No. 7, pp. 383-384.

PHYSIOLOGIC OPTICS

Greenbaum, S. S. A New Astigmatic Chart. (9 Ill) Amer. Jour. of Oph. Vol. 7, No. 1, pp. 8-15.

Kane, H. Reducing the Oblique Cross Cylinders to Their Sphero-Cylinder Equivalent. Opt. Jour. and Rev. Vol. LII, No. 25, pp. 28-29.

Swaine, W. A. Study of Prisms and Lenses. (4 Ill) Opt. Jour. and Rev. Vol. LII, No. 26, pp. 25-26.

OCULAR MUSCLES

Alexander, G. F. Considerations of Ocular Vergence. Opt. Jour. and Rev. Vol. LII, No. 25, pp. 31-34.

Padman, R. S. Power of Fusion in High Exophoria. Opt. Jour. and Rev. Vol. LII, No. 26, pp. 29-30.

GENERAL REFRACTION.

Bagwell, W. Muscle Imballance from a Blind Eye. Opt. Jour. and Rev. Vol. LIII, No. 2, p. 25.

Bonner, W. F. Premature Presbyopia. E. E. N. & T., Mo. Vol. 2, No. 12, pp. 656-657.

De Mars, L. L. Optometric Diagnostic Points. N. W. Jour. of Optom. Vol. 1, No. 1, pp. 2-4.

Fairbanks, H. R. Testing and Correcting Astigmatism. Opt. Jour. and Rev. Vol. LIII, No. 2, pp. 26-30.

Green, J. and Hardy, F. Some Observations on Astigmatism. Opt. Jour. and Rev. Vol. LIII, No. 1, pp. 27-28.

Kurtz, J. I. The Geneva Ophthalmoscope. N. W. Jour. of Optom. Vol. 1, No. 1, p. 15.

Pointell, C. H. The Correction of Myopia. Opt. Age. Vol. 20, No. 9, pp. 30-31.

Shepard, C. F. Vocational Considerations. Opt. Age. Vol. 20, No. 9, pp. 23-24.

Shepard, G. A. Perspective, Its Relation to Perfect Vision. E. E. N. & T., Mo. Vol. 2, No. 11, pp. 602-603.

Diagnosis of Blindness (Editorial). Amer. Jour. of Oph. Series 3, Vol. 7, No. 1, pp. 58-59.

Principals of Crossed Cylinders. (Abst. from the Institute Journal.) Opt. Jour. and Rev. Vol. LIII, No. 1, p. 30.

OCULAR NEUROLOGY

Duane, A. The Associated Movements of the Eyes, Their Nerve Centers, Conducting Paths, Production, Varieties and Derangements. Amer. Jour. of Oph. Series 3, Vol. 7, No. 1, pp. 16-25.

Jones, E. L. Expenditure of Vital Energy in Eyestrain as a cause of Nervous and Heart Disorders. Astigmatism as a Chief Factor. (Abst. from the Amer. Jour. of Oph.) Opt. Jour. and Rev. Vol. LII, No. 24, pp. 29-34.

OCULAR HYGIENE

Hospital Construction to Eliminate Eye Fatigue. West. Opt. World. Vol. 10, No. 7, pp. 402-404.

ELECTROTHERAPY

Hall, C. M. High Frequency Current as an Adjunct to an Ophthalmic Practice. (Ill) Opt. Age. Vol. 20, No. 9, pp. 25-29.

OPTOMETRY

Cox, C. E. Clinic Work at the Rochester School of Optometry. Opt. Age. Vol. 20, No. 9, p. 31.

Hoffman, A. C. The Minneapolis Conservation of Vision Campaign. (Ill) N. W. Jour. of Optom. Vol. 1, No. 1, pp. 4-8.

Ketchum, W. M. The Clinic at the Los Angeles School. Opt. Age. Vol. 20, No. 9, p. 29.

Von Rohr, M. Contributions to the History of the Spectacle Trade from the Earliest Time to Thomas Young's Appearance. Opt. Jour. and Rev. Vol. LIII, No. 1, pp. 35-37.

The Rochester School of Optometry (Editorial). N. W. Jour. of Optom. Vol. 1, No. 1, pp. 10-11.

BOOK NOTICES

PRINCIPLES AND PRACTICE OF PERIMETRY.Luther C. Peter, A. M., M. D., F. A. C. S., Professor of Ophthalmology in Temple University Medical School. Cloth. Price $4.00. 166 Illus. Pp. 281. Second Edition. Phila: Lea and Febiger. 1923.

The examination of the visual fields in a phase of ophthalmology and optometry that is often neglected but should have a place on every routine visual examination. The charting of the form field for the various standard colors and the plotting of scotomata is daily becoming more and more important. From the field charts clinical diagnosis is arrived at readily and, in fact, is practically as important as the ophthalmoscope. After reading this book one is forced to resolve to make use of the discarded perimeter or to get a new one. In this small textbook the scope of perimetry is well covered.

Part 1 deals with the Anatomy and Physiology of the Visual Pathway; Part 2 with the Physiological Principles; Normal Fields; Entopic Study, Influences on the Size and Shape of the Normal Field, Mariotte's Blind Spot and the size of the Color Fields. Part 3 describes the various methods of charting the field and the instruments in use. Here the author says that the perimeter is useless in charting central field defects. The point is strongly emphasized that the perimeter "is essentially adapted to the outlining of peripheral field limits," but for areas between the point of fixation and the blind spot of Mariotte some form of the tangent screen should be used. Lloyd's stereo-campimeter slate is given credulence as being "a stereoscopic scotometer of real value and of considerable range." Part 4 deals with the General Pathology of the Visual Fields and Part 5 the Special Pathology of the Fields. Part 6 is given up to the Fields in Functional Nervous Diseases while an appendix gives the use of the perimeter in the measurement of squint, Estimation of the Angle Kappa of Landolt, Diplopia and the Location of Foreign Bodies.

The book is replete with references and has a well filled bibliography. Primarily a text and reference book for ophthalmologists it is not beyond the ability of an optometrist to grasp.

—E. O. F.

EDUCATIONAL QUESTIONAIRE OF THE SOUTH DAKOTA OPTOMETRIC SOCIETY

Optometric questions similar to those listed below will appear from month to month in the Northwest Journal of Optometry. The answers will appear in the following issue. Members of the South Dakota Optometric Society are requested to send the answers to these questions to the editor of this department, Dr. R. G. Colberg, Aberdeen, South Dakota.

ANSWERS TO PREVIOUS QUESTIONAIRE

1. **Binocularly one cannot accommodate without converging. The two functions work together, i. e., if one accommodates for a thirteen inch distance, or three dioptres he will also converge to three meter angles.**
2. **As one grows older one gradually loses the power of accommodation until he reaches a point where he requires help in the form of plus lenses to aid him at the near point.**
3. **Emmetropia, describes an eye with no refractive error, while Ammetropia is a general term applied to that condition of the eye in which there is an error of refraction present.**
4. **The effect would be similar to prisms base in.**
5. **In Regular Astigmia the meridians of greatest and least curvature are at right angles to each other. Any other arrangement of the Corneal curvatures is Irregular Astigmia.**

FEBRUARY QUESTIONAIRE

6. *What is a Ciliary Spasm?*
7. *In Retinoscopy, if you select 20 inches as your working distance just what amount must you deduct from your static findings to get your finished formula?*
8. *If you get a point of reversal in static skiametry while working at 20 inches with a plus 3.00 D. Spherical lens, what would you prescribe?*
9. *Transpose the following to their + ( ) + equivalents:*
   (a) *+2.00 D. sph. ( )—0.50 D. cyl. axis 180.*
   (b) *+3.00 D. sph. ( )—3.00 D. cyl. axis 45.*
   (c) *+5.50 D. sph. ( )—1.25 D. cyl. axis 10.*